

WHAT IS CLAIMED IS:

1. A resin molding die comprising:

a cavity;

a resin inlet through which a liquid resin to be cured is injected into the cavity; and

an air vent through which air is released to an exterior space of the resin molding die during injection of the resin, the air vent being provided on an opposite side from the resin inlet with respect to the cavity.

2. A resin molding die according to claim 1, wherein:

the resin is a thermosetting resin; and

the air vent has an interspace of such dimensions that when the resin molding die is heated to or above a curing temperature of the thermosetting resin, air is allowed to be released to the exterior space of the resin molding die but that the resin cures and remains within the resin molding die.

3. A resin molding die according to claim 1,

wherein the air vent has an interspace of such dimensions that the resin flows at a pressure which is in the neighborhood of a pressure imposed by the weight

of the resin.

4. A resin molding die according to claim 2,

wherein the air vent has an interspace of such dimensions that the resin being filled in the cavity expels air to the air vent, and that the resin cures within the air vent without leaking into the exterior space of the resin molding die.

5. A resin molding die according to claim 1, wherein:

the resin is a thermosetting resin; and

at least a portion of the resin inlet is in an open state when the resin molding die is heated to or above a curing temperature of the thermosetting resin during injection of the resin.

6. A method for producing a semiconductor device comprising the steps of:

setting a semiconductor device in a cavity of a resin molding die;

injecting a thermosetting resin from a resin injection nozzle into the cavity, through a resin inlet of the resin molding die and a gate, at a pressure which is equal to or greater than a pressure imposed by the weight

of the thermosetting resin and which is equal to or less than about 2 kg/cm²; and

curing the thermosetting resin to encapsulate the semiconductor device within the thermosetting resin.

7. A method according to claim 6,

wherein the step of injecting the thermosetting resin comprises lowering a viscosity of the thermosetting resin to about 3000 cps or less so that the thermosetting resin can pass through the gate at a pressure which is equal to or greater than the pressure imposed by the weight of the thermosetting resin and which is equal to or less than about 2 kg/cm².

8. A method according to claim 6,

wherein the step of injecting the thermosetting resin comprises injecting the thermosetting resin while heating the resin molding die to or above a curing temperature of the thermosetting resin.

9. A method according to claim 6, wherein:

the step of injecting the thermosetting resin comprises injecting the thermosetting resin while maintaining the resin molding die below a curing

temperature of the thermosetting resin; and

the step of curing the thermosetting resin comprises heating the resin molding die to or above the curing temperature of the thermosetting resin.

10. A method according to claim 6,

wherein the step of injecting the thermosetting resin comprises providing a space between the resin inlet and the resin injection nozzle so as to ensure that the resin inlet is not closed off by the resin injection nozzle when the resin molding die is heated to or above a curing temperature of the thermosetting resin during injection of the resin.

11. A method according to claim 6,

wherein the step of injecting the thermosetting resin comprises cooling the resin injection nozzle so as to be maintained at a temperature sufficiently below a curing temperature of the thermosetting resin.

12. A method according to claim 6,

wherein the thermosetting resin is a resin which is obtained by adding a radical polymerization initiator or a cationic polymerization initiator to at least one main

component selected from the group consisting of: a liquid epoxy resin; a liquid vinyl ester resin; an allyl resin; and a low-viscosity unsaturated polyester resin.

13. A method according to claim 12, wherein:

the thermosetting resin is a transparent resin; and
the semiconductor device is a light
receiving/emitting device.